

# Historic Military Systems as Heritage: A Comparative Analysis of Preservation Strategies in Western Europe

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## Abstract

Preserving military heritage presents challenges, notably in addressing the intersection of architectural and landscape heritage concerns. European nineteenth century military systems provide a pertinent case study on this issue. Initially located in non-urban environments, these military systems are now incorporated into the development dynamics of bustling metropolitan areas. On one hand, they can be considered landscape systems falling under landscape policies, while the military artifacts within them fall under the realm of architectural heritage preservation. Consequently, there is a need for the integration of architectural and landscape domains, an aspect frequently overlooked in preservation practice. Following their loss of military function, the military artifacts often find a second life as individual objects, but the overall historic system as a landscape layer is rarely addressed. The absence of preservation strategies considering all relevant scales in an integrated manner poses a hindrance to the necessary dialogue between architectural and landscape domains. This challenge is associated with the European dichotomy between nature and culture evident in both international and national heritage policies. This article summarizes the findings of the author's doctoral dissertation on preservation strategies for historic military systems, comparing Italian and Dutch approaches and contextualizing them within the framework of international heritage policies.<sup>1</sup> It highlights the role played by national landscape protection frameworks as well as the different impact of UNESCO nominations on Italian and Dutch case studies.

Keywords: Military heritage, landscape systems, preservation strategies

## Historic military systems: navigating the intersection of architecture and landscape heritage

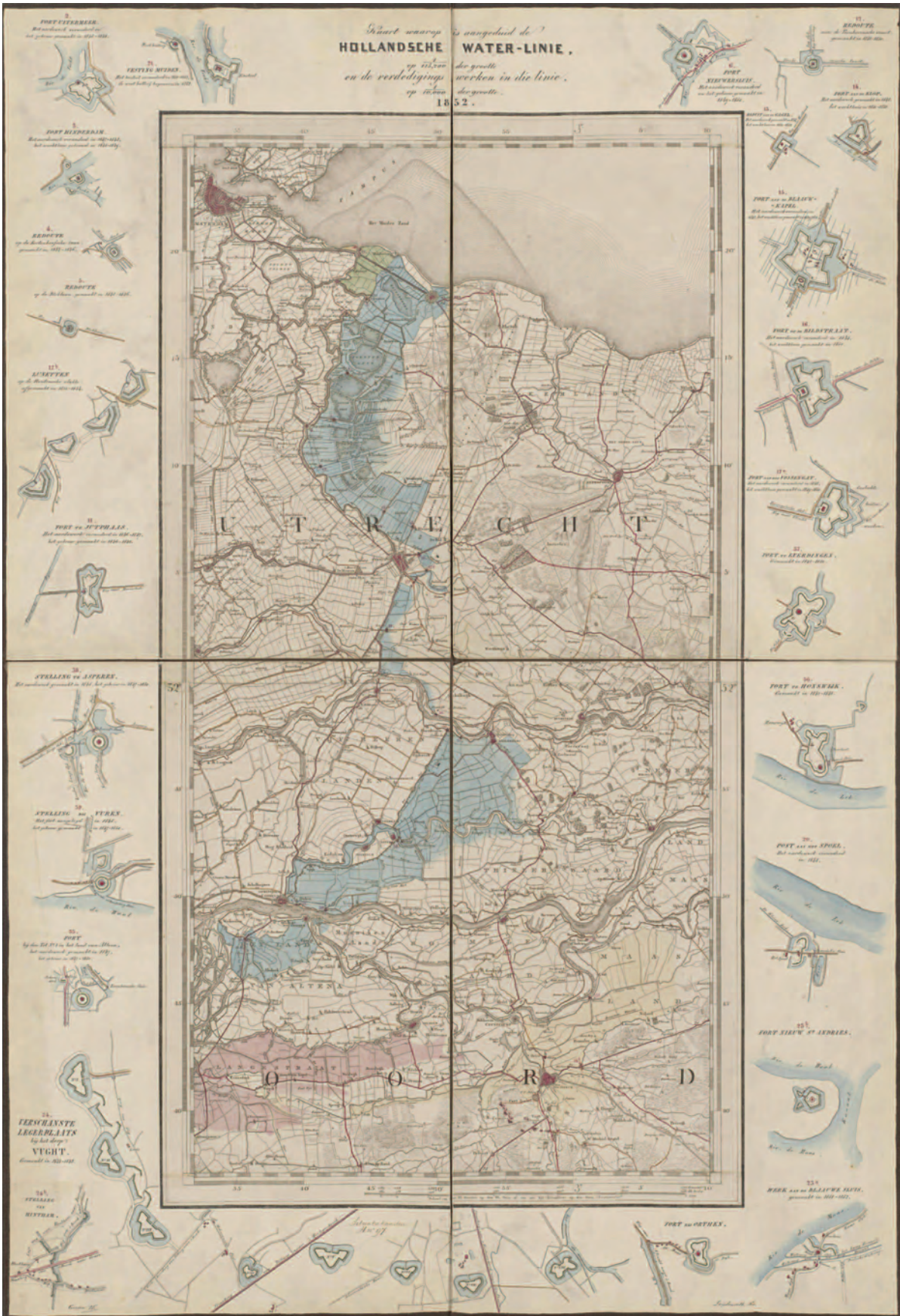
Since the onset of the Modern Age, European

fortifications have evolved from individual military artefacts into systemic structures, driven by the necessity to broaden defence strategies across larger territories.<sup>2</sup> This trend intensified in the nineteenth century, coinciding with significant advancements in artillery and the peak of permanent fortification theory.<sup>3</sup>

Indeed, nineteenth-century structures exhibited extensive territorial reach, leveraging environmental resources for strategic purposes (Fig. 1). These systems often comprised a combination of isolated objects, like forts, designed to work cohesively towards a common military objective (Fig. 2). Shaped by a unique 'way of seeing' the landscape,<sup>4</sup> their construction involved sight-based design solutions extending beyond the local scale of individual military objects.<sup>5</sup> Consequently, these systems align with the Council of Europe's definition of landscape systems, placing their heritage preservation under the purview of landscape policies.<sup>6</sup>

Simultaneously, these isolated objects may not always correspond to a single construction, but they frequently embody a *system* character, given by blending synthetic and natural components (Fig. 3).<sup>7</sup> As single objects, their conception is part of a much longer tradition of military architecture, and can rely on a well-established tradition in the realm of architectural heritage preservation.<sup>8</sup> Instead, as military systems, they present a newer challenge for landscape heritage preservation, requiring expertise from disciplines beyond architectural heritage, such as spatial planning and landscape architecture.<sup>9</sup>

Together with these intrinsic characteristics, navigating the intersection of architecture and landscape heritage in the preservation of historic military systems is complicated by the diversity of approaches in Europe to landscape heritage. Architectural heritage is traditionally encompassed in cultural heritage policies, while landscape heritage shows the coexistence of naturalistic and cultural approaches. Despite attempts to bridge the nature-culture dichotomy, it continues to influence contemporary





landscape policies at both national and international levels.<sup>10</sup>

The imperative to address the interconnectedness of nature and culture has emerged as a significant concern

over the past three decades in heritage studies. This development is intricately linked to the evolution of the landscape concept, now universally acknowledged as the outcome of interactions between natural and/or human

*Figure 1 – Ministerie van Oorlog, Kaart waarop is aangeduid de Hollandsche Waterlinie en de verdedigings werken in de linie (Ministry of War, Map indicating the Dutch Waterline and the defence works in the line) (1852). The New Dutch Waterline (NL) represents a peculiar example of 19th-century military system developed in Europe, in which the available environmental resources—i.e., the geomorphological and hydraulic conditions of the southwestern part of the Netherlands—are exploited for defence purposes. It was designed to function as a water machine, inundating a strip of land of 85 km to protect the historical province of Holland in case of enemy advance from the east. This water barrier was complemented by forts and other military works, which were built in those places where inundation was not feasible (National Archive Den Haag).*



*Figure 2 – Bunnik (NL): aerial picture of Fort Rijnauwen (top) and Fort bij Vechten (down), two of the forts in the New Dutch Waterline (1920-1940) (Stichting Menno van Coehoorn).*





Figure 3 – Tull en 't Waal (NL), Werk aan de Waalse Wetering: the combination of synthetic (i.e., building) and natural components (i.e., water ditch, earthworks, camouflage vegetation) represent a distinctive feature of the forts of the New Dutch Waterline (F. Marulo 2019).

factors.<sup>11</sup> Consequently, efforts to formulate strategies that integrate the approaches and tools of preserving natural and cultural heritage have been consistently explored, particularly concerning landscapes deemed sacred or agricultural.<sup>12</sup> However, military landscapes have been largely overlooked, neglecting one of the three principal human structures (sacred, work, power) that has significantly shaped the historical development of our landscapes.<sup>13</sup> This is due to their classification as ‘designed landscapes’, positioned in the cultural heritage domain.<sup>14</sup> Additionally, the awareness of the adverse environmental impacts of military interventions over time,<sup>15</sup> which are undeniable, has eclipsed the need for nature-cultural interconnections in the preservation of this military heritage.

### **Preservation strategies in western Europe: Italian and Dutch case studies**

In order to fill this gap, it was deemed pertinent to undertake a cross-national comparison between two

Western European countries that epitomize the two primary attitudes in Europe toward landscape protection. As a consequence of a meticulous selection process,<sup>16</sup> Italy and the Netherlands emerged as appropriate contexts for this comparative analysis. Subsequently, two cases were chosen for examination in each country: the recent projects involving the revitalization of the New Dutch Waterline, in the Netherlands, and the Entrenched Field of Mestre on the Venice’s mainland, in Italy.

Both these military systems were developed starting from the nineteenth century and share a distinctive relationship with water in their respective contexts. However, the historical role of water in the defence strategies of these two military systems is notably distinct. The Dutch Waterline was designed as a comprehensive water machine, where the intentional flooding of a substantial area around the Randstad region played a pivotal role in the overall defence strategy.<sup>17</sup> Conversely, the development of the Entrenched Field of Mestre in the second half of the nineteenth century marked a trend



reversal in the defence strategy for Venice, which had relied until that moment on the natural water barrier surrounding the island and the fortifications scattered throughout the lagoon (Fig. 4).<sup>18</sup>

Furthermore, the distinctive role of water is intricately linked to the differing functions of forts in these two military systems (Fig. 5a-5b). In the New Dutch Waterline, military artifacts like forts served as supplementary components to the main water infrastructure, securing areas where inundation was not a feasible defence measure. They were built across six phases, resulting in a diverse array of fort typologies that evolved in response to changes in warfare and weaponry (Fig. 6). In contrast, forts assumed a primary role as the first line of defence in the Italian Entrenched Field of Mestre. Composed of a more limited number of twelve forts, its construction unfolded in three phases, with

corresponding fort typologies and construction materials (Fig. 7).

### *Top-down and bottom-up approaches*

In the comparative analysis of the projects for the New Dutch Waterline and the Entrenched Field of Mestre, the different historical role of water and the varying functions of forts within the military systems is reflected in the acknowledgment of their heritage values and, therefore, in the preservation strategies developed for their revitalization and reuse.<sup>19</sup>

In particular, a top-down approach was applied for the revitalization of the New Dutch Waterline, started with its inclusion in a governmental program (1999)<sup>20</sup> and the drafting of a masterplan for the whole military system (2004).<sup>21</sup> On the other hand, the Italian experience started in the 1980s with the bottom-up reappropriation of the

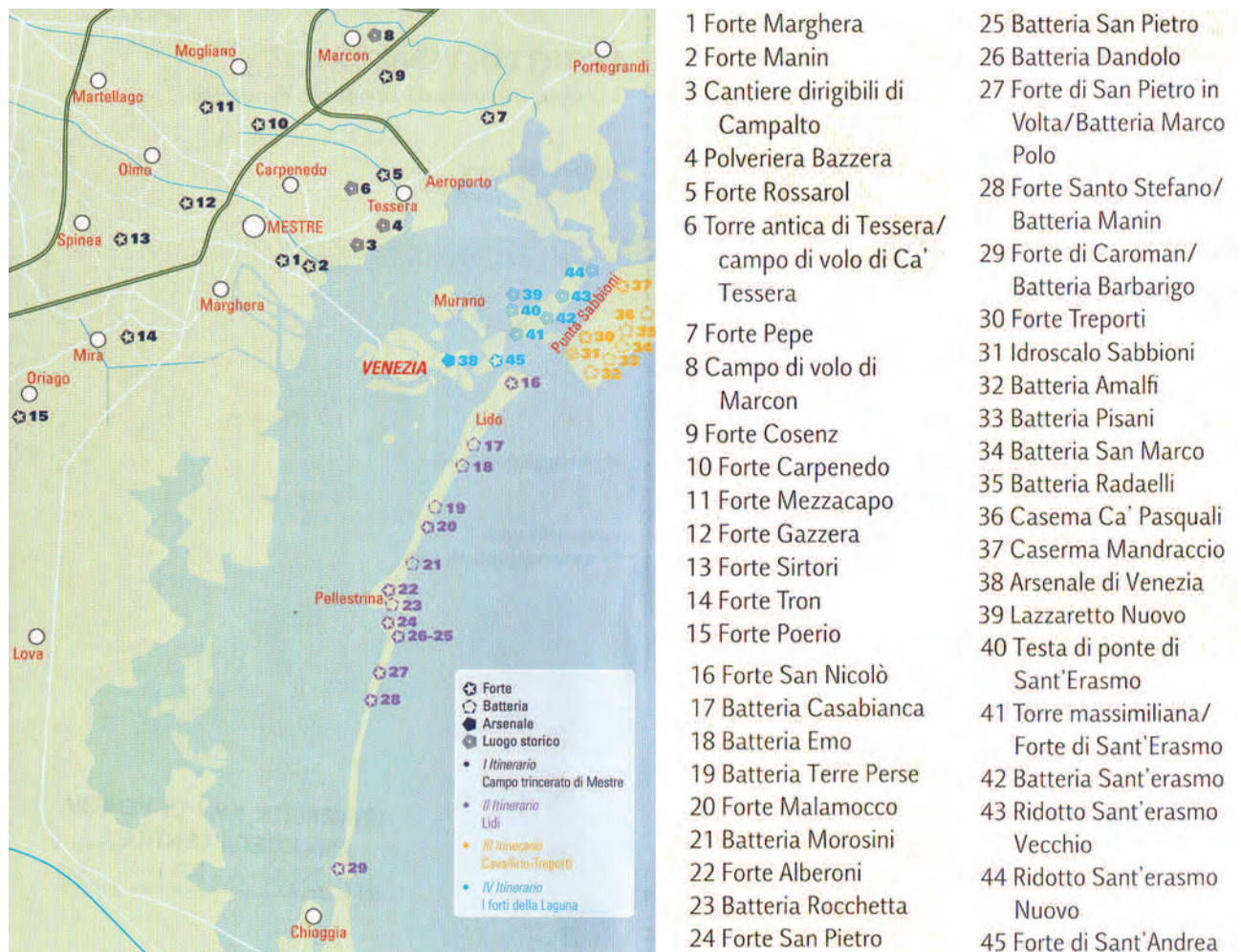


Figure 4 – Venice (IT), map showing the current distribution of fortifications built over the centuries for the defence of Venice (Sroccaro 2015: 1-2).

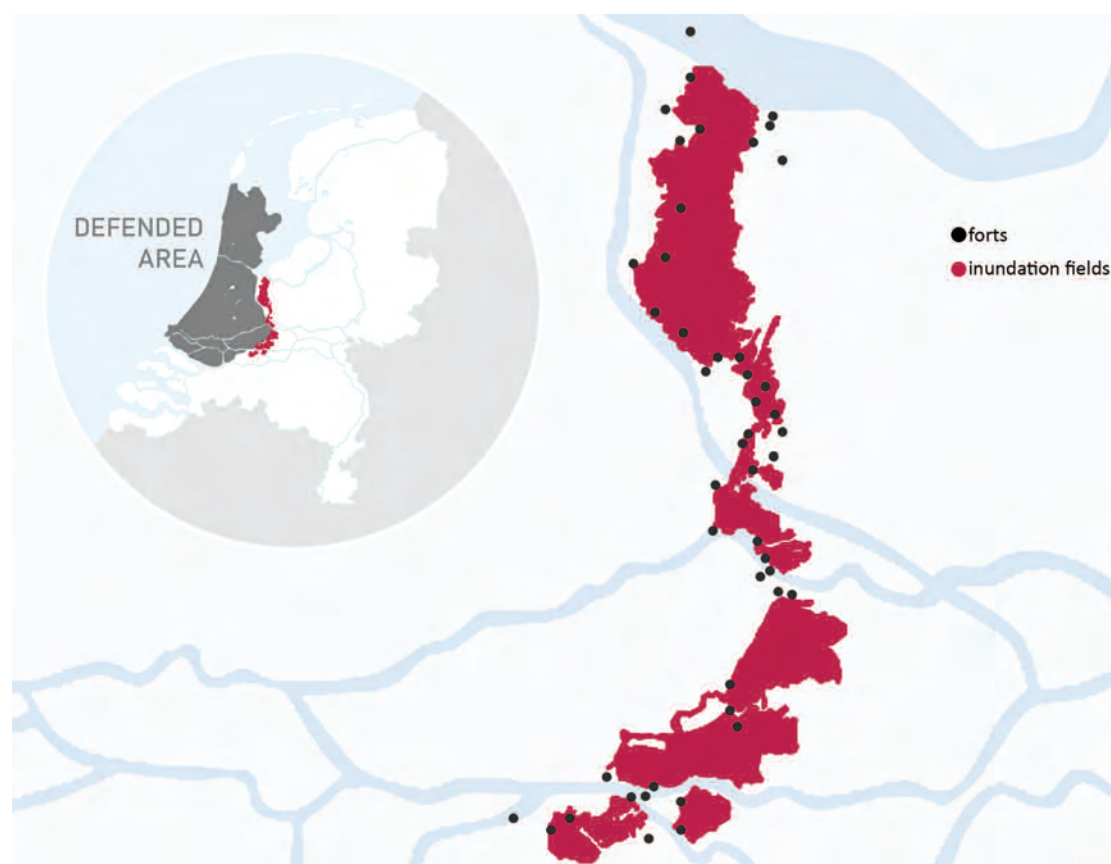


Figure 5 – The New Dutch Waterline (top) and the Entrenched Field of Mestre (bottom): maps showing the different role played by water in the two historic military systems (F. Marulo 2022).





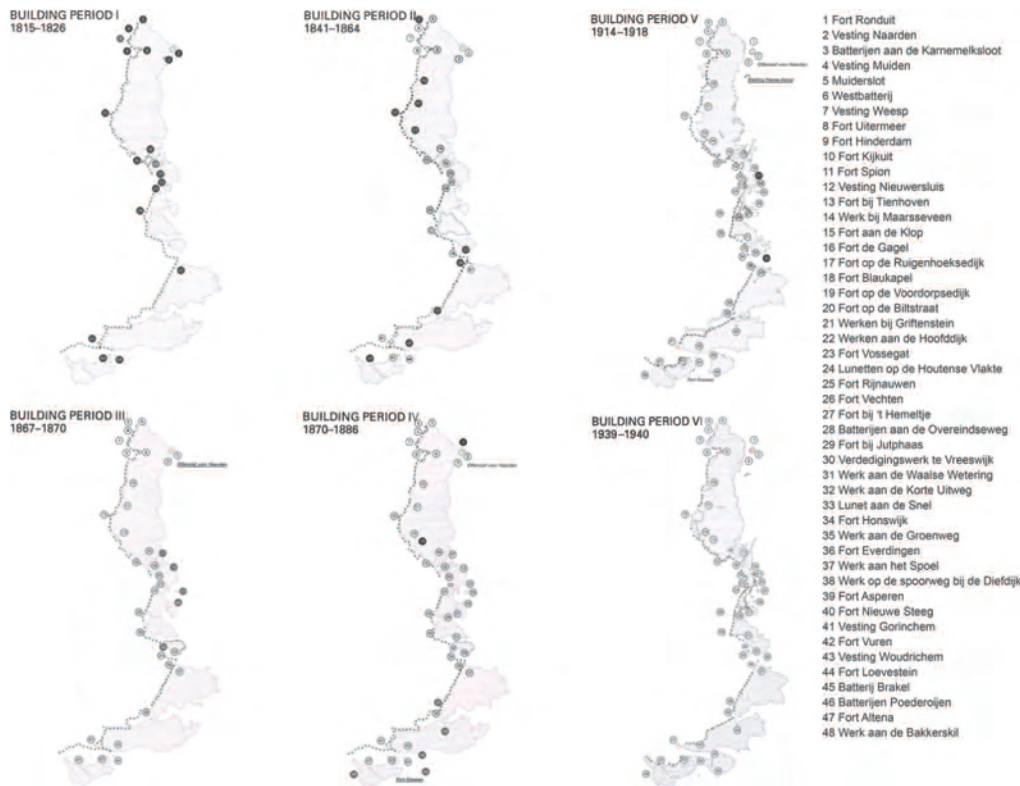
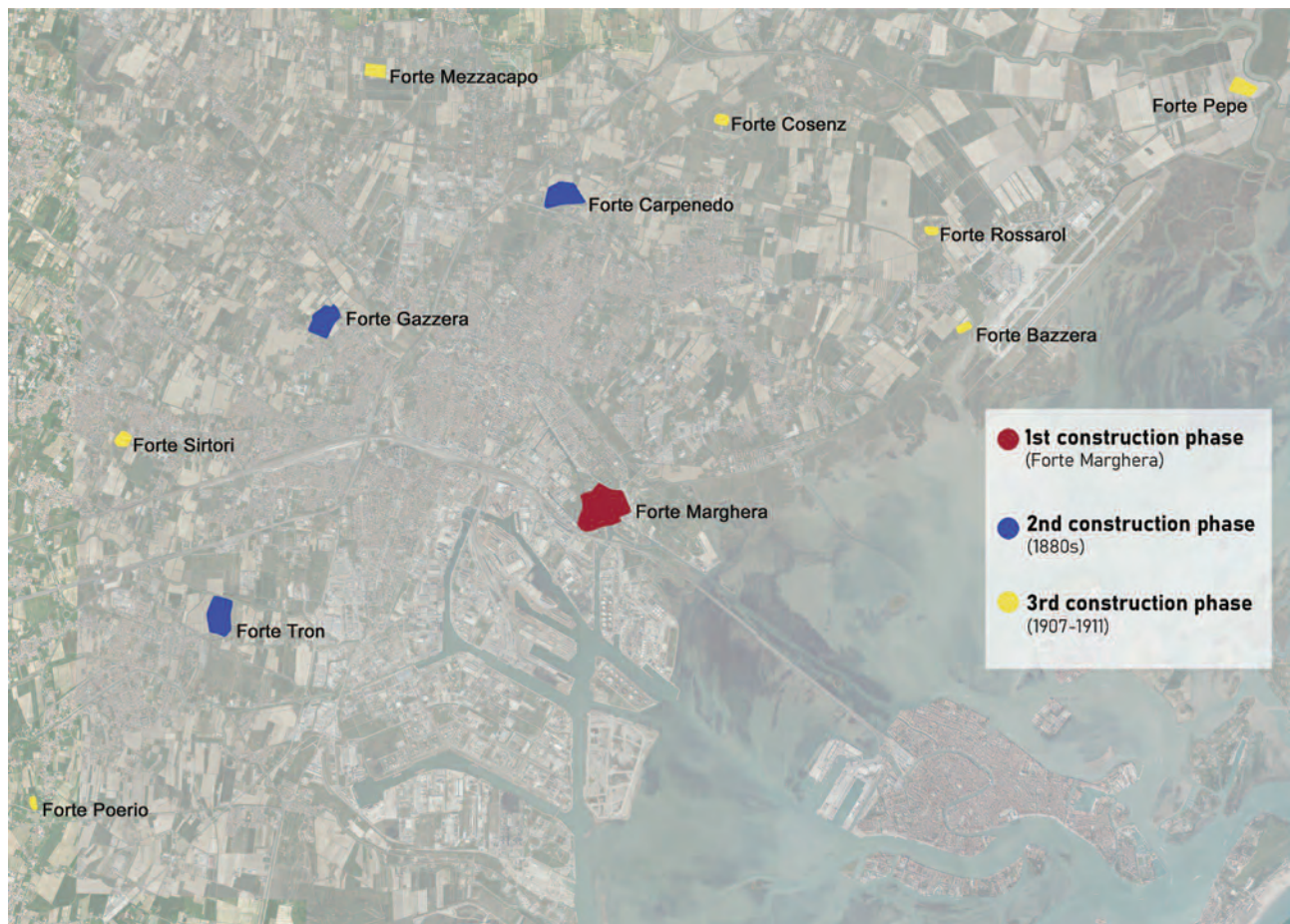


Figure 6 – New Dutch Waterline (NL), scheme showing the six phases of construction of the forts. In total, the New Dutch Waterline was composed by 48 forts and military works, ranging from 2 and 32 ha (Steenbergen et. al. 2009: 25).

Figure 7 – Entrenched Field of Mestre (IT), scheme showing the three phases of construction of the forts. In total, the Entrenched Field of Mestre was composed by 12 forts and military works (F. Marulo 2022).



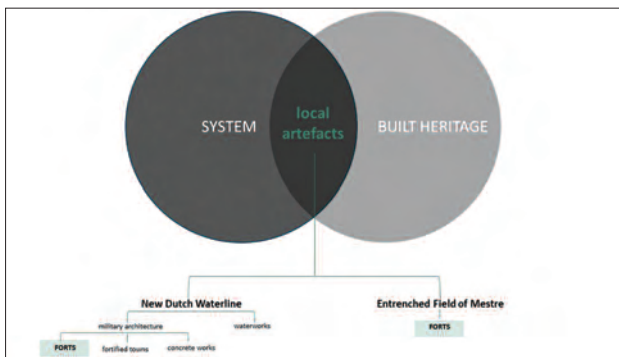


Figure 8 – Scheme showing the central role played by local artefacts in multi-scale preservation strategies for historic military systems. The Dutch case study (New Dutch Waterline) is characterized by a great variety of local artefacts, belonging to two main typologies: military architecture (i.e., fortified towns, forts, concrete works) and waterworks. In order to reach a balanced comparison with the Italian military system (Entrenched Field of Mestre), the choice was made to focus the analysis on the forts (F. Marulo 2022).

forts formerly belonging to the Entrenched Field of Mestre by local voluntary associations, which then joined forces into a bigger organization to team up with the municipality of Venice by the end of the 1990s.<sup>22</sup>

The top-down/bottom-up dynamic not only pertains to

the actor initiating the revitalization process (the government, in the Netherlands; the local volunteers, in Italy), but also extends to the way in which the preservation strategy was developed. Given the different starting points, the two case studies were analysed according to three main scales: the overall system, the local artefacts, the built heritage. Within this framework, the scale of the local artefacts plays a crucial role, because they represent the intermediate link between the landscape system and the built heritage. Therefore, the local artefacts—and in particular the fort sites—are the focal point for the analysis and discussion of the case studies (Fig. 8). Accordingly, the forts are examined through a dual lens: 1) as components of a historic military system and 2) as built heritage. This dual perspective offers a nuanced understanding of their role and significance in the preservation strategies.

#### ***Forts as components of a historic military system***

In the transition of the Entrenched Field of Mestre from a military system to a heritage system, two parallel trajectories emerged. Firstly, the forts gained official recognition as monuments by the *Soprintendenza per i*



Figure 10 – Venice (IT), Forte Marghera: aerial view (1996) (Archive Associazione dalla Guerra alla Pace).



## Blauwe Kaart



Figure 9 – Panorama Krayenhoff (2004), the Blauwe kaart (Blue map) with the identification of the water reservoirs aimed at giving a second life to the inundation basins of the New Dutch Waterline in the contemporary water management system of the Netherlands (Luiten 2004: 27).

### BLAUWE KAART

-  Ruimte voor de rivier  
'meeknappende' uiterwaarden
-  Afwateringsgebieden per gebied
-  Gebieden met mogelijkheden  
voor seizoenberging
-  Berging in permanent natte  
gebieden
-  Zoekgebieden voor waterberging  
in noodsituaties
-  Mogelijkheden voor 'groene rivieren'

ondergrond:  
Topografische Dienst Emmen



Figure 11 –  
Bunnik (NL),  
Fort bij Vechten  
in the Kraag van  
Utrecht (Collar  
of Utrecht)  
(aerial image  
retrieved at:

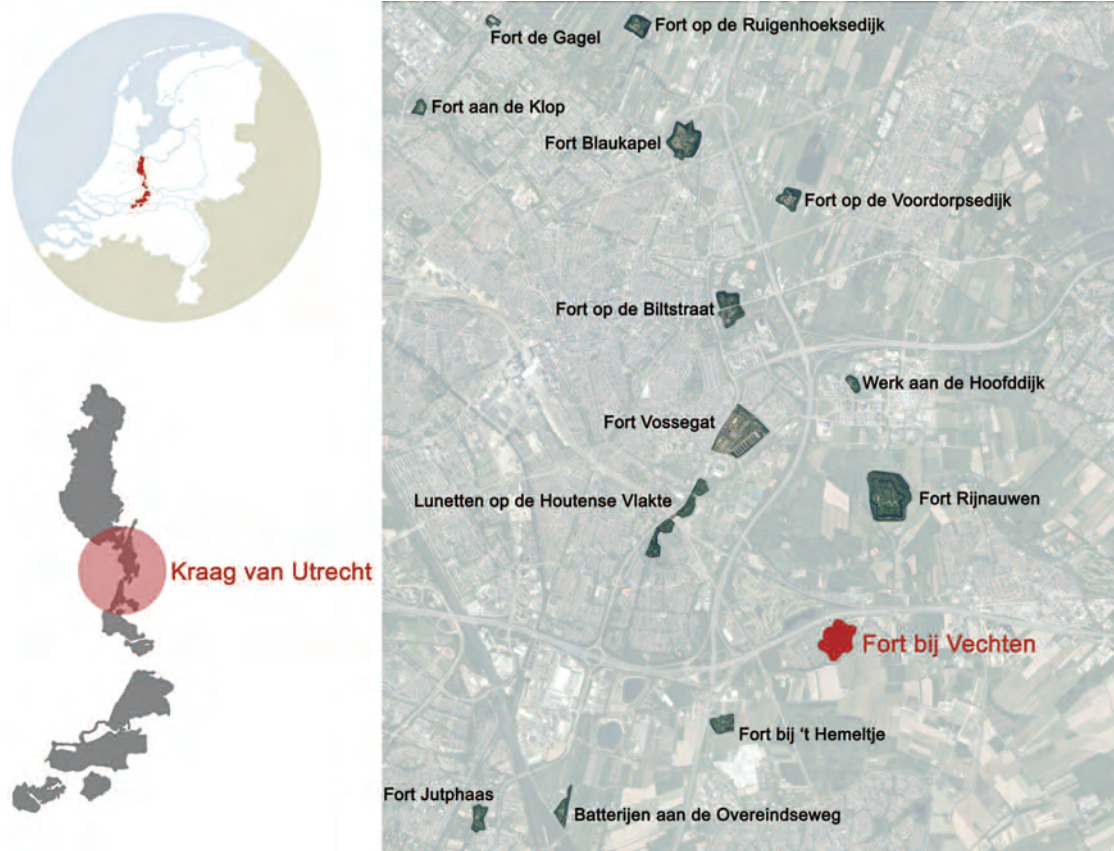


Figure 12 – Bunnik (NL), Fort bij Vechten: the state of the site before the interventions realized between 2011 and 2015 (1999)  
(Stichting Menno van Coehoorn).



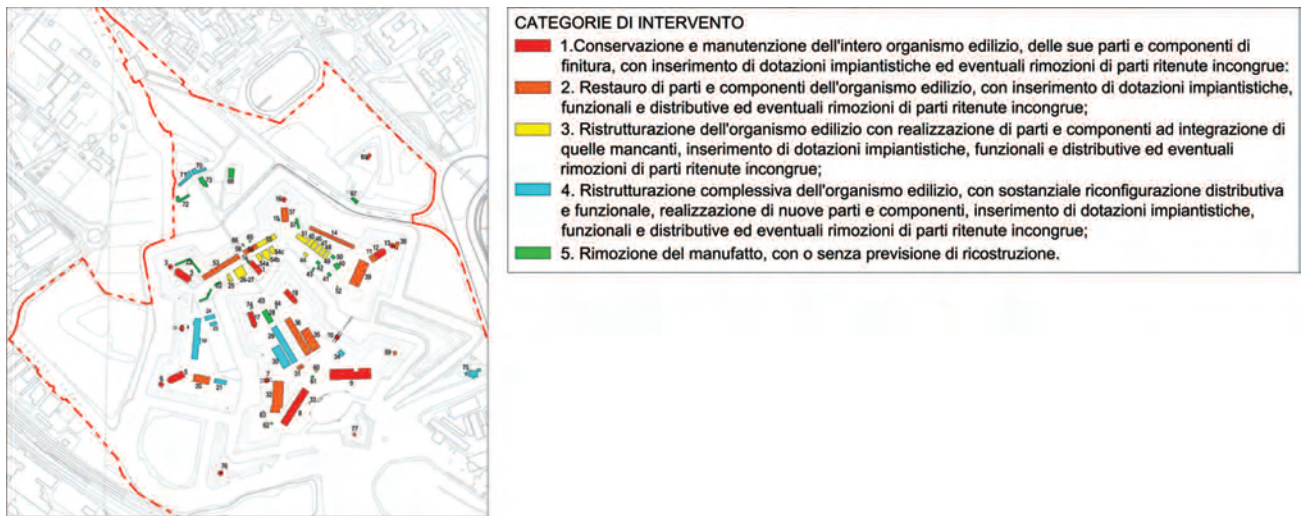


Figure 13 – Venice (IT), Forte Marghera: Piano di recupero di iniziativa pubblica – Compendio Forte Marghera (Public initiative recovery plan – Compendium Forte Marghera). Based on the historic-architectural investigation of the buildings on the fort site, this map shows the five degrees of transformability envisaged in the recovery plan for Forte Marghera: 1) conservation and maintenance of the whole building (red); 2) restoration of part of the building (orange); refurbishment of part of the building (yellow); 4) refurbishment of the whole building (blue); 5) demolition (green) (ASABAPV, Box Mestre: Forti: Forte Marghera, vol. 9 (Progetto di Recupero), File: Comune di Venezia, Direzione Sviluppo e Territorio: Ufficio Urbanistica di Mestre, Piano di recupero di iniziativa pubblica – Compendio Forte Marghera (2013), Tav. 23).



Figure 14 – Venice (IT), Forte Marghera: the barracks building incorporating the 16th-century bridge of the former hamlet of Marghera was restored and adapted to host the new 'Study centre for the enhancement of military architecture and defensive systems' (2015-2017) (F. Marulo 2020).





Figure 15 – Venice (IT), Forte Marghera: one of the two French barracks, which represent the historic buildings with the most monumental value on the fort site. A project for the restoration of these two buildings has been approved (F. Marulo 2020).

*Beni Ambientali e Architettonici* (Superintendence for Environmental and Architectural Goods) of Venice,<sup>23</sup> while simultaneously, local volunteer associations initiated a process of re-appropriation of these forts.<sup>24</sup> Notably, the volunteers extended their vision beyond the individual forts, aiming to preserve the entire system. This perspective initially highlighted the potential role of the Entrenched Field of Mestre in the environmental restructuring of the Venice mainland.<sup>25</sup> However, as the municipality of Venice assumed control, the emphasis shifted towards a fort-centric approach for reuse.<sup>26</sup> The involvement of volunteers dwindled, leading to a change in focus from the military landscape system to a strategy for an ensemble of fort sites.<sup>27</sup>

Contrastingly, in the case of the New Dutch Waterline, the initial listing of individual forts as monuments evolved into a broader recognition of the military system as a water machine, catalysing a national revitalization project. The Panorama Krakenhoff (2004), a masterplan for the entire system, exemplifies the Dutch approach, in which historical features of the military system are reinterpreted

in a contemporary way, emphasizing a balance between natural and cultural aspects (Fig. 9).<sup>28</sup> This strategic approach acknowledges the landscape dimension of the historic military system and transforms its preservation into an opportunity for guiding future developments.

Despite these divergent strategies, both the Italian and Dutch cases share a common choice to give priority to one specific fort. However, the motivations behind these selections differ significantly. In the Italian context, the choice of Forte Marghera stems from its historical-architectural significance, being the oldest fort of the Entrenched Field and serving as a war memorial (Fig. 10).<sup>29</sup> Additionally, its strategic location between mainland and lagoon enhanced its potential for future developments. As the largest fort with the highest recreational potential, it was assumed as an economic carrier for interventions on other forts.

On the other hand, Fort bij Vechten is also strategically chosen due to its central location within the New Dutch Waterline, adjacency to a highway, as well as to its architectural and landscape qualities (Figs. 11 and 12).<sup>30</sup>



Figure 16 – Bunnik (NL), Fort bij Vechten: the masterplan with indication of the strook (strip) where vegetation and earthworks were restored to their 1880's layout (2011-2015) (design: West8 & Rapp+Rapp) (Hannema 2016: 131).

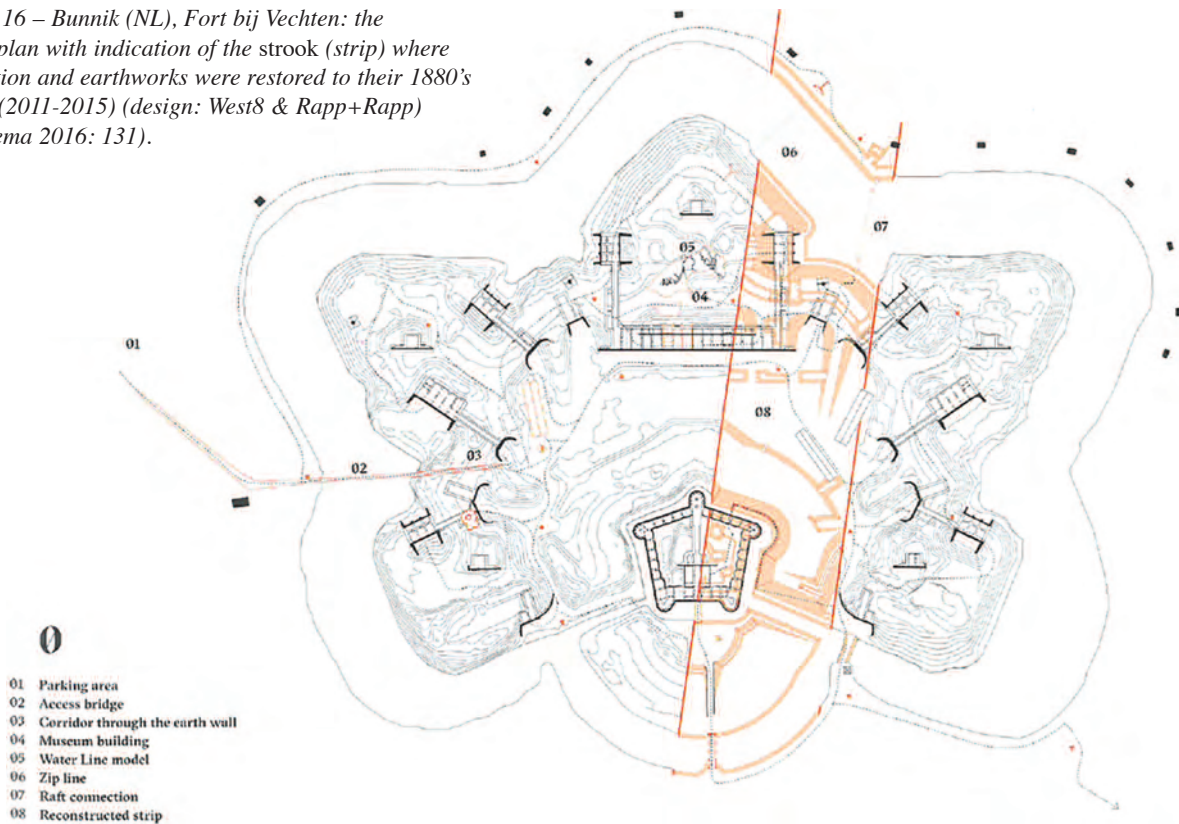


Figure 17 – Bunnik (NL), Fort bij Vechten: the strook (strip) was designed to be seen from the highway (Will & Groot 2018: 12).

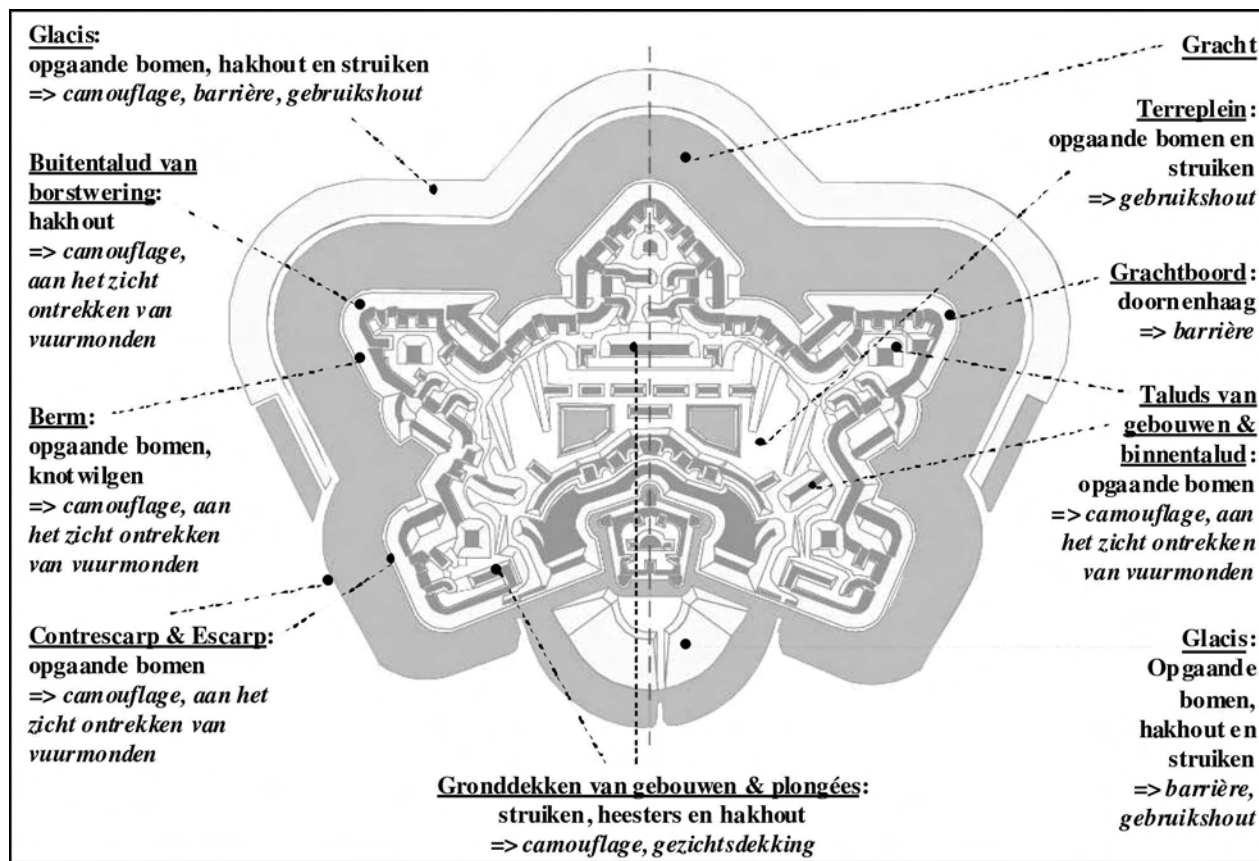


Figure 18 – Bunnik (NL), Fort bij Vechten: study of the historic use of vegetation for military purposes (Boosten & Jansen 2007:

However, unlike Forte Marghera, Fort bij Vechten served as a *pars pro toto*, symbolizing the memory of the waterline at the scale of the local artifacts, rather than being primarily regarded as an economic carrier. This choice showcases an inter-scale approach, connecting the system's scale with that of local artifacts. Therefore, while in both cases the choices made regarding specific forts underscore the multifaceted considerations of historical, strategic, and economic factors, they do reflect distinct preservation strategies in the transition of military systems into heritage sites.

### ***Forts as built heritage***

When switching the focus on the forts' built heritage, the impact of implemented projects within specific forts is interesting to analyse.<sup>31</sup> This investigation delved into the nuanced interpretation of nature-culture interlinkages, showing a different way of addressing the preservation of synthetic and biological components in the two contexts.

The case study of Forte Marghera reveals a reuse strategy primarily driven by the historical buildings on the fort site. Extensive research into the architectural and

constructive history of these buildings laid the groundwork for defining the reuse strategy and prioritizing interventions (Figs. 13-15). Attention is also directed to the ecological potential of green components (canals, earthworks, and vegetation); however, they are primarily evaluated in relation to potential threats they posed to the historic buildings.

Conversely, the approach adopted for the built heritage of Fort bij Vechten exemplifies a revitalization strategy where green components take precedence. Interventions on earthworks and vegetation, resembling land art, serve as the guiding principle for the overall strategy. An example of this is the land-art feature called *strook*, a strip in which the fort's earthworks and vegetation are restored to their 1880s' configuration (Figs. 16 and 17). It symbolizes the historical evolution of using vegetation for military purposes (Fig. 18),<sup>32</sup> implementing a *pars pro toto* approach at the fort scale. The creation of an underground Waterline museum as an extension to the bomb-proof barracks further underscores the implemented preservation strategy, aiming to make a statement about the historical significance of the waterline (Figs. 19- 21).





Figure 19 – Bunnik (NL), Fort bij Vechten: the bombproof barracks, façade (F. Marulo 2019).

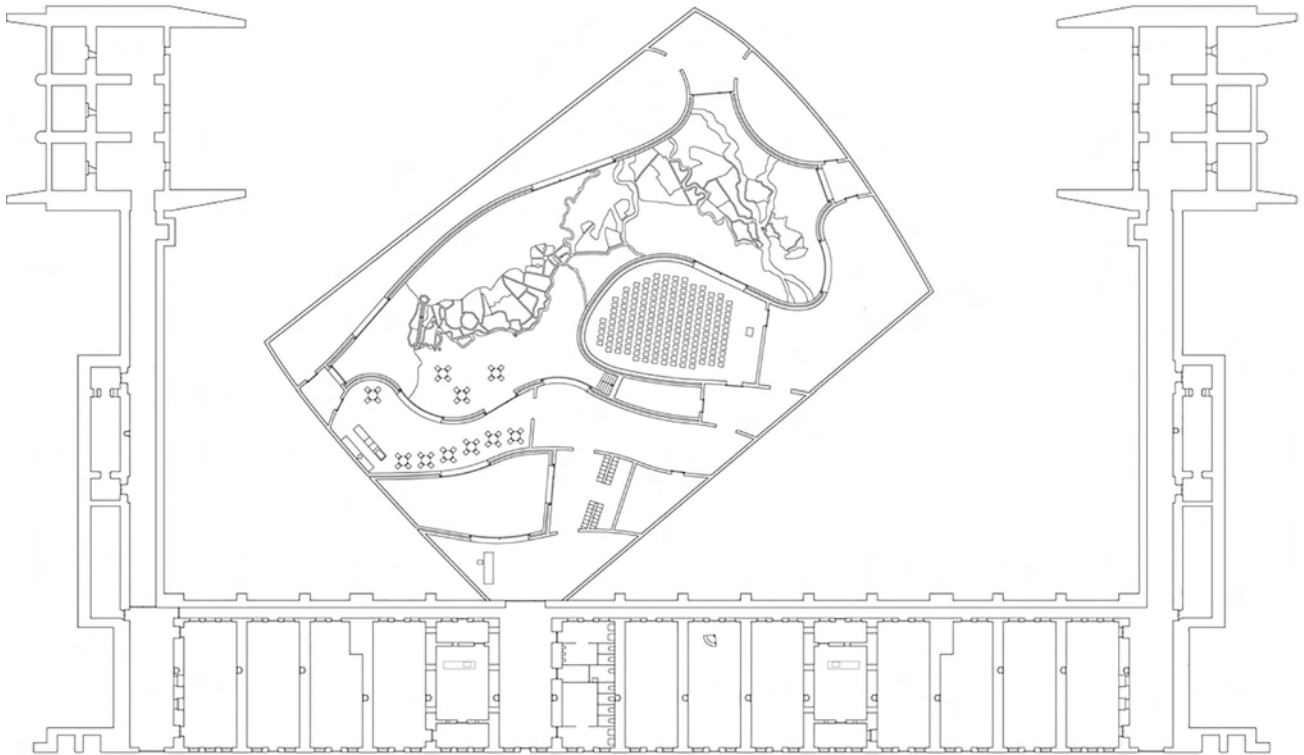


Figure 20 – Bunnik (NL), Fort bij Vechten: plan of the Waterline museum, realized as an underground addition to the bombproof barracks (2011) (design: A. Holtrop) (Mortice 2016).





Figure 21 - Bunnik (NL), Fort bij Vechten: the Waterline museum was given a patio hosting a 50-meter-long model of the waterline, where the functioning of inundations can be simulated (F. Marulo 2020).



Figure 22 - Bunnik (NL), Fort bij Vechten: solution adopted to prevent (human) access to part of the buildings on the fort site for bat hibernation (design: BunkerQ) (F. Marulo 2020).





Figure 23 – Bunnik (NL), Fort bij Vechten: the flank battery H, turned into an event location to support the economic sustainability of the fort's exploitation (design: BunkerQ) (F. Marulo 2019).

However, the historic buildings on the fort site do not play a decisive role in this design narrative, with the focus on their contemporary ecological or recreational value for the revitalization (Figs. 22 and 23). Monumental buildings, including the central redoubt, are not prioritized for restoration within the overall strategy (Figs. 24-26). Worthy of mention are innovative adaptations, such as the opening on the roof of the flank battery EL to showcase historical characteristics of the fort's built heritage connected to the water collection system (Figs. 27 and 28).<sup>33</sup>

### Exceptional vs. ordinary heritage

#### *Historic military systems and national landscape policies*

The comparison highlights how a similar interplay between multiple interests (i.e., architectural heritage preservation, ecological and historic-cultural appreciation



Figure 24 – Bunnik (NL), Fort bij Vechten, the bombproof barracks: partial cleaning of the façade in the portion falling within the strook (strip) (F. Marulo 2020).

of green heritage, spatial planning and economic sustainability) has led to different preservation strategies for historic military systems in the Italian and Dutch contexts. In order to better understand both similarities and differences, it is necessary to ground them in the different paradigms for landscape protection in the two countries.

The discourse around the European landscape phenomenon is commonly articulated in literature through the traditional dichotomy between a 'naturalist' and a 'cultural' perspective. These two facets are distinguished by the varying emphasis placed on ecological, social, and economic values of landscapes on one side, and historical, aesthetic, and identity-related values on the other.<sup>34</sup> C. Tosco has described this duality as an 'objective' and a 'subjective' dimension, with a focus on geographical phenomena and personal perceptions, respectively.<sup>35</sup> This binary framework is also employed in examining the evolution of European conservation policies, revealing





Figure 25 – Bunnik (NL), Fort bij Vechten, the central redoubt: exterior (front) after the intervention: earthworks and vegetation are restored to their 1880s layout only in that part of the building falling within the strook (strip) (F. Marulo 2020).

two discernible trends: one marked by the segregation of naturalistic and cultural elements, and the other characterized by the integration of landscape protection within cultural heritage policies.<sup>36</sup> This duality manifests in distinct attitudes towards architectural heritage, as well as on the degree heritage policies are integrated in spatial planning measures.<sup>37</sup>

Landscape protection in Italy originated in the framework of legal measures aimed at safeguarding the historic-artistic and architectural monuments of the nation in the early 20th century.<sup>38</sup> Since that moment, the Italian approach rests on the assumption that the whole national territory is worthy of landscape protection, which is anchored in the cultural heritage legal framework and relies, for its application, on planning instruments.<sup>39</sup> Within this framework, the protection of the Entrenched Field of Mestre is only provided by putting the single forts under legal (cultural heritage) protection, so that the historical and architectural qualities of the fort sites are secured. However, their landscape qualities and the whole military system are only partially acknowledged.

Conversely, landscape protection in the Netherlands has its roots in the first nature conservation initiatives promoted at the beginning of the twentieth century.<sup>40</sup> Subsequently, it has been—and still is—embedded into agricultural and spatial planning policies.<sup>41</sup> Moreover, the Dutch framework lies on a selective approach of exceptional landscape structures—like the waterline—the protection of which is provided by the careful application of spatial planning tools, complemented when necessary by the sectorial tools of cultural heritage protection.<sup>42</sup> In relation to this, the change in the protection framework for the New Dutch Waterline is significant. Indeed, before the inclusion of the historic military system into a national program (1999), only a part of the forts were listed monuments. In 2009, the waterline—as a whole system—was given the status of national monument, protected under the Cultural Heritage Act.<sup>43</sup>

#### ***International heritage policies: UNESCO and the recognition of military landscapes***

Together with the initiatives undertaken at the national





Figure 26 – Bunnik (NL), Fort bij Vechten, the central redoubt: exterior (back) after the intervention: despite its high monumental value and poor state of conservation, the building is not interested by preservation works (F. Marulo 2020).



Figure 27 – Bunnik (NL), Fort bij Vechten, flank battery EL: the opening on the roof showing the functioning of the rain water collection system of the building (F. Marulo 2020).





Figure 28 – Bunnik (NL), Fort bij Vechten, flank battery EL: the opening on the roof seen from the inside (F. Marulo 2020).

level, an examination of the influence of international heritage policies on the Italian and Dutch experiences with the revitalization of historic military system was carried out. Specifically, the impact of UNESCO nominations on these historic military systems provided further basis for comparison.

Since the introduction of the the World Heritage Convention in 1972, the concept of Outstanding Universal Value (OUV) is at the core of the UNESCO World Heritage framework, referring to heritage of exceptional significance that transcend national boundaries and are important to all of humanity.<sup>44</sup> It applies to both cultural and natural heritage, which are presented as two separated domains and entrusted to two different advisory bodies: ICOMOS (International Council of Monuments and Sites) and IUCN (International Union for Conservation of Nature). When the category of ‘cultural landscapes’ was introduced in 1992, it was classified as only cultural heritage.<sup>45</sup> Therefore, nominations in this field are primarily assessed by ICOMOS.<sup>46</sup>

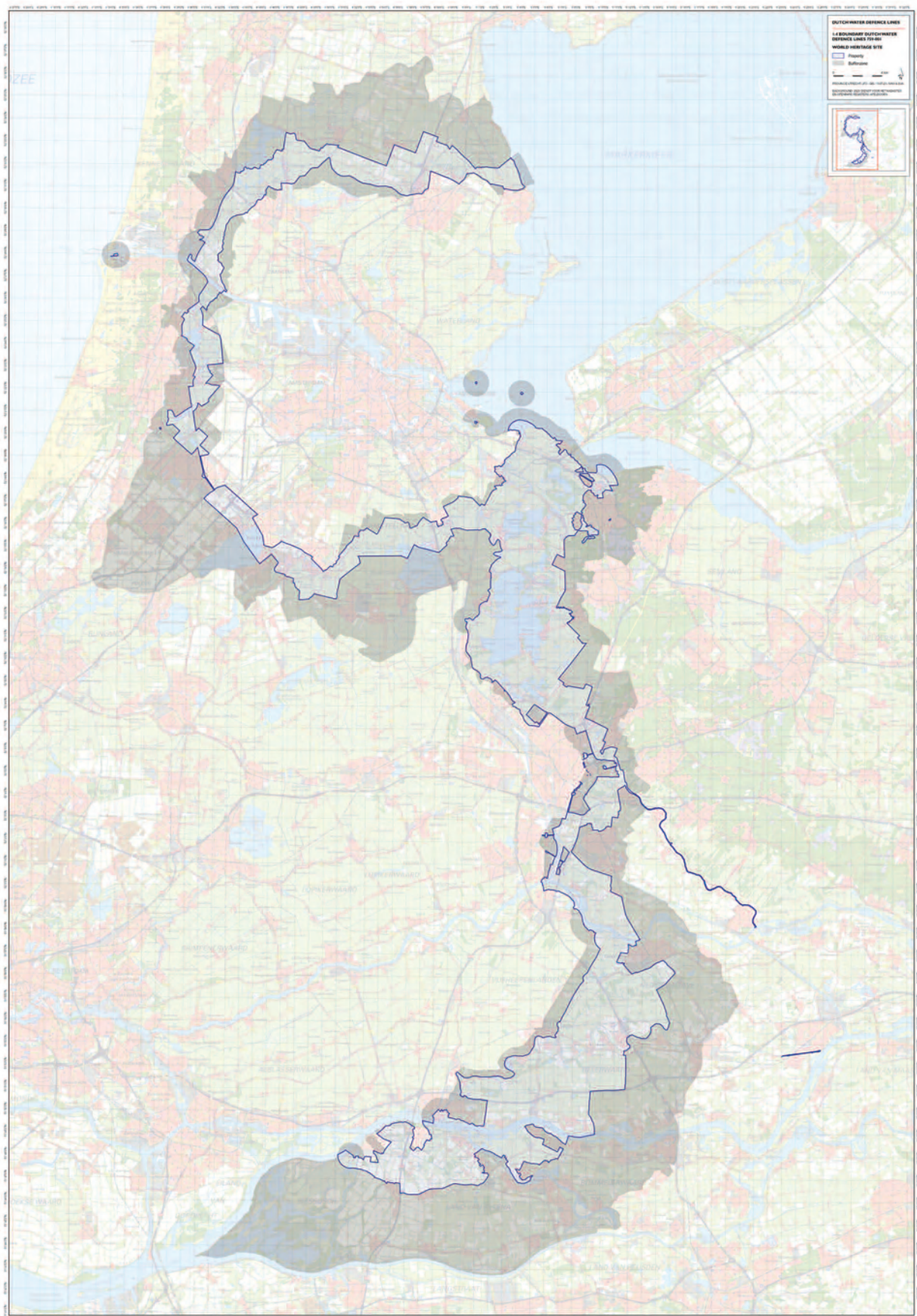
In the Netherlands, the Waterline’s acknowledged exceptional character at the national level was further

accentuated by its designation as a World Heritage site (2021) (Fig. 29).<sup>47</sup> The inundation fields, a distinctive landscape feature of this historical military system, were deemed of outstanding universal value, and their preservation was a matter of discussion with ICOMOS.<sup>48</sup> The latter served as a valuable counterbalance, especially considering that the national recognition of the New Dutch Waterline as a monument in 2009 had excluded the protection of inundation fields.<sup>49</sup>

Conversely, the Entrenched Field of Mestre in Italy did not receive analogous international recognition. However, the nearby UNESCO site of Venice and its Lagoon indirectly influenced the revitalization process (Fig. 30).<sup>50</sup> The historic military system was assumed as an ordinary heritage, with the mainland of Venice representing the place were to address all the demands of a contemporary metropolis that could not be accommodated within the island’s World Heritage site. Therefore, the UNESCO

Figure 29 – Map of the World Heritage Site of the ‘Dutch Water Defence Lines’ (2023) (Image retrieved at: <https://whc.unesco.org/en/list/759/maps/> [25.01.2024])





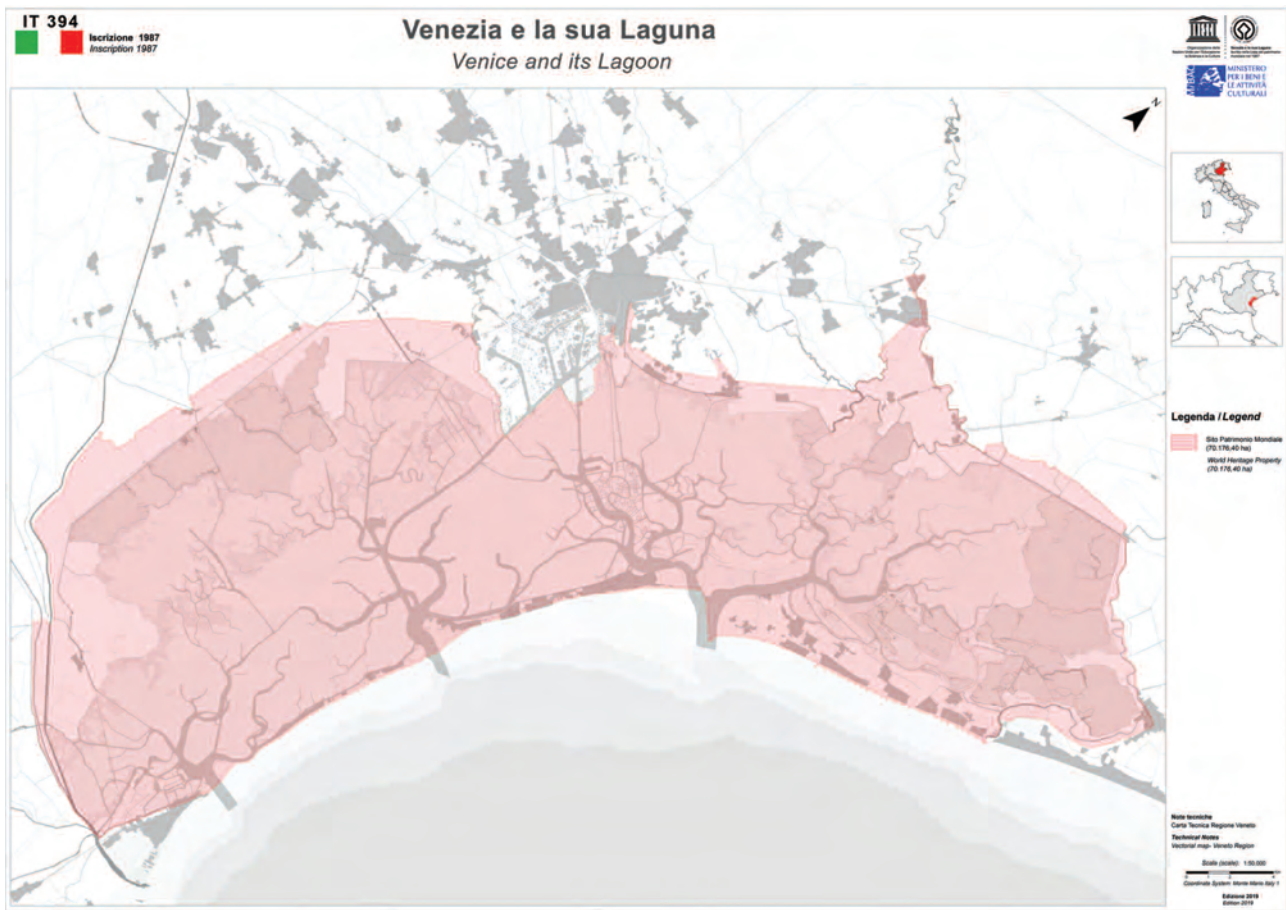


Figure 30 – Map of the World Heritage Site of ‘Venice and its Lagoon’ (2019) (Image retrieved at: <https://whc.unesco.org/en/list/394/maps/> [25.01.2024])

site’s presence did not bring noteworthy enhancements to the locally implemented preservation strategy for the military system. Only Forte Marghera has been included in the World Heritage Site as a single object, with the overall system of the Entrenched Field of Mestre only marginally benefiting from the World Heritage nomination. Promoting a greater equilibrium between what is deemed outstanding and other non-exceptional heritage features in a given territory is, therefore, desirable for the future management of World Heritage sites.<sup>51</sup>

## Conclusions

The comparative analysis of the two case studies underscores the pivotal role of effective selection procedures in shaping preservation strategies for historic military systems. The process of selection necessitates the establishment of priorities, often guided by the identification of thematic approaches grounded in a profound historical understanding of the heritage systems

at hand. Notably, a thematic (military) approach is evident in the Dutch experience, where the centrality of military heritage within the historical layers of the landscape in its area of influence forms a key thematic lens. In contrast, in the Italian approach the historic military system is treated on an equal footing with other landscape layers, lacking a distinct thematic emphasis. While the application of a thematic approach has facilitated the recognition of the New Dutch Waterline as a national and world heritage, the exceptional nature of the Dutch revitalization experience poses challenges for the development of a universally applicable conceptual framework.

The Dutch case study, marked by the gradual evolution of the New Dutch Waterline into an exceptional heritage site at both national and international level, raises questions about extending the experience to other historic landscape systems that lack a similar exceptional status. With landscape protection responsibilities increasingly delegated to municipalities in the Netherlands and historic



systems often transcending local scales,<sup>52</sup> a central direction is crucial to fostering the acknowledgment of non-exceptional historic landscape systems.

Transnational exchange considerations further underscore the need to take into account the peculiarity of the Dutch landscape policy framework, based on selective protection. Indeed, the success of the Dutch experience may not be readily applicable in contexts that diverge from this background. The comparison with Italy reveals challenges in isolating a military landscape system from its broader context. Therefore, the presence of a national legal framework for landscape protection embedded in the cultural heritage policy does not represent, in itself, a guarantee for historic military systems to be acknowledged in their landscape dimension. While the Dutch thematic (military) approach might find traction in Italy for cases where military structures have a dominant role in the landscape, it may not be generally applicable in contexts where historic military systems coexist with various landscape elements and layers deemed equally valuable.

In addition to the military thematic approach, the Dutch emphasis on the theme of water emerges as a significant feature, contributing to the unique character of the New Dutch Waterline as both historic military system and contemporary heritage system. In contrast, the Italian case, lacking a similar water infrastructure for defence, raises questions on the broader applicability of the water theme. Nevertheless, the relevance of the hydraulic setting in the Italian military system (e.g., in the location of the forts) suggests potential for examining water connections in cases with non-exceptional yet relevant relationships with water. Also at the scale of the local artifacts and their built heritage, the water theme has the potential to promote nature-culture interlinkages by encompassing both synthetic and biological components, and representing a catalyst at the scale of built heritage. Drawing inspiration from the preservation of historic gardens and their hydraulic systems,<sup>53</sup> the water theme can facilitate interdisciplinary dialogues between natural sciences and humanities in addressing the symbiotic relationship between vegetal components and historic buildings on fort sites. Ultimately, the identification of a common theme, such as water, offers a pathway to mutual exchange and collaboration across scales, for a holistic approach to the preservation of historic military systems.

## Biographical note

Federica Marulo is currently Assistant Professor in Cultural Heritage & Identity: Material and Intangible Heritage, Chair of History and Theory of Architecture and Urbanism, at the University of Groningen (The Netherlands). Federica was trained as an architect and she graduated at the University of Naples Federico II (Italy) in 2016 with a master thesis on the preservation of the heritage site of the Mills' Valley in Sorrento (Italy). She obtained a PhD on 'Preservation Strategies of Historic Military Systems: a Comparison Between Italy and the Netherlands' (2022) with a joint doctoral program between TU Delft (the Netherlands) and the University of Naples Federico II (Italy). She was teacher at TU Delft, Section Heritage & Architecture, for bachelor and master courses (2023). She was trainee at Stichting Monumentenbezit (the Netherlands) in 2022–2023, carrying out research and supporting the maintenance works of the World Heritage Site and Dutch National Monument of Naarden's fortifications.

Her research expertise and interests include: the history & theory of architectural heritage preservation; construction history; nature-culture interlinkages and the relationship between architectural and landscape heritage in the historical evolution of national and international protection frameworks, as well as in contemporary preservation practices, with a focus on military systems, vernacular architecture and water-related built heritage. Her future scholarship aims at exploring the topic of 'eco-cultural identities: heritage values and non-human life in built heritage preservation'. Federica is a member of various networks in the cultural heritage field, like ICOMOS Nederland and Europeana.

## Notes

1. Marulo, F. (2022).
2. Tosco, C. (2009) pp.165–166.
3. Fiorino, D. R. (2020) pp.42–43.
4. Cosgrove, D. & Daniels, S. (Eds.) (1988) p.9.
5. Fitzhugh, A. (1943) p.119–124; Duempelman, S. (2014) pp.153–208.
6. According to the Council of Europe, 'landscape systems constitute the characteristics of a "specific landscape". They correspond to the natural and/or human interaction between landscape features, which include how populations perceive them'. About the landscape features, it is stated that 'when such elements, or basic components of the landscape, are studied or used in their own right, they cannot reflect the systemic, holistic dimension of the landscape. In practice, it is the interaction between the different elements that is more important than the elements themselves' (Council of Europe (2018) pp. 32–33).



7. Within the ICOMOS Guidelines provided by the International Scientific Committee on Fortifications and Military Heritage (ICOFORT), 'fortifications and military heritage comprise any structure built with either natural (i.e., botanical, or geological) or synthetic materials, by a community to protect themselves from assailants' (ICOMOS 2021a: article 1).
8. Cf. Brice, M.H. (1984); Duffy, C. (1979); Duffy, C. (1985); Duffy, C. (1996); Hogg, I.V. (1975).
9. In relation to recent advancements on the topic of military landscapes as heritage, see: Fiorino, D. R. (Ed.) (2017); on the importance of landscape research for military heritage studies, see: Tchikine, A. & Davis, J. D. (Eds.) (2021).
10. An account of European landscape policies and the nature-culture divide is provided later in this article.
11. According to the European Landscape Convention (2000), 'landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors' (Council of Europe (2000) p. 2).
12. Schaaf, T. & Lee, C. (2006) ; Schaaf, T. & Rossler, M. (2010); World Heritage Centre (2013); Ishizawa, M., Inaba, N. and Youshida, M. (Eds.) (2017); Ishizawa, M., Inaba, N. and Youshida, M. (Eds.) (2018).
13. According to Tosco, C. (2009) pp. 165–166, historic buildings and landscapes can be interpreted as the material traces left by invisible 'anthropic structures': namely, those 'forms of social organization which define, in a certain period, the interaction between a society and the natural resources at its disposal'. Accordingly, he identifies three dominant anthropic structures in the historical landscape, connected to the sphere of the sacred, of work and of power.
14. 'Designed Landscapes' are one of the three categories in which 'cultural landscapes' are classified within the World Heritage Convention (Cf. UNESCO 2023: 22). About the issues connected to the UNESCO's classification of landscapes as only cultural properties, see: Leitão, L. (2017).
15. Cf. Coates, P., Cole, T., Dudley, M. & Pearson, C. (2011); Woodward, R. (2014).
16. As noted by Scazzosi, L. (1999) pp. 18–21, the separation between naturalistic and historical-cultural aspects in landscape protection is evident in northern European countries (e.g., the Netherlands), while in countries like Italy and France landscape protection is closely linked to the protection of historic-artistic monuments. Moreover, the differences connected to the integration (Netherlands) or separation (Italy) of heritage and spatial planning policies was also considered for the selection of the two countries (cf. Manfredi, C. (2017) pp. 35–41).
17. Cf. Will, C. and Nationaal Project Nieuwe Hollandse Waterlinie (2019); Werf (van der), J. (2021).
18. Cf. Scroccaro, M. (2015) pp. 9–14; Brunello, P. (2009).
19. The two military systems had lost their strategic military function after the WWI (Entrenched Field of Mestre) and the WWII (New Dutch Waterline). In both cases, the Ministry of Defense temporarily kept the forts to host secondary logistic functions up to the 1980s, but with a gradual reduction of maintenance works.
20. Feddes, F. and Wilkens C.S. (1999).
21. Luiten, E. (2004).
22. In 1996, the voluntary associations set the so-called *Coordinamento per il recupero del Campo Trincerato di Mestre* (Association for the recovery of the Entrenched Field of Mestre) (cf. *Archivio del Coordinamento per il Recupero del Campo Trincerato di Mestre* (Archive of the Group for the Recovery of the Entrenched Field of Mestre; from now on: ACCTM), Fond 1, Box *Coordinamento per il Recupero del Campo Trincerato di Mestre*, File 1 (*Storia dell'Ente di Gestione*), Document: *Assemblea Costituente del Coordinamento per il recupero del Campo Trincerato di Mestre* (06 March 1997)).
23. The superintendencies are peripheral bodies of the Italian Minister of Culture, responsible for the protection of cultural heritage in their territory of competence. In 2016, they were reformed into *Soprintendenze Archeologia, Belle Arti e Paesaggio* (Superintendencies for Archaeology, Fine Arts and Landscape), combining the previously separated superintendencies for Archaeology and Fine Arts and that for Environmental and Architectural Goods. The first fort to be put under legal protection by the Superintendence of Venice was Forte Marghera (1966, 1980), then followed by Forte Gazzera, Forte Carpenedo and Forte Tron (1988), and Forte Rossaroll (1990). The remaining five forts—Forte Poerio, Forte Mezzacapo, Forte Sirtori, Forte Cosenz, Forte Pepe—were initially judged as a 'repetition of the same military model' and, therefore, of 'limited interest' (cf. ACCTM, Fond 1, Box *Coordinamento per il Recupero del Campo Trincerato di Mestre*, File 1 (*Storia dell'Ente di Gestione*), Document: *I forti del Campo Trincerato di Mestre* (27 February 1992). Nevertheless, nowadays they are all under legal protection.
24. Reference is made to the *Comitato Forte Gazzera* (Forte Gazzera Committee) (1982), the *Cooperativa Limosa* (Cooperative Limosa) (1987) for Forte Tron, and the *Gruppo di Iniziativa per la Salvaguardia e l'Utilizzo Pubblico di Forte Carpenedo* (Initiative Group for the Protection and Public Use of Forte Carpenedo) (1995).
25. By the end of the 1990s, the mainland of Venice was interested in massive restructuring interventions like the projects for the *Bosco di Mestre* (Mestre Wood) (cf. Zanetti, M. (Ed.) (2007)) and the *Parco di San Giuliano* (San Giuliano Park) (cf. Comune di Venezia 1992).
26. In this, the delays determined by property transfer complexities and legislative changes had an impact (cf. Gruppo di lavoro per Forte Marghera...terra d'acqua (2014) pp. 17–24).
27. The emphasis on the forts is evident from the guidelines elaborated for the recovery of the Entrenched Field of Mestre in 2007 (cf. ACCTM, Fond 1, Box *Coordinamento per il Recupero del Campo Trincerato di Mestre*, File 2 (*Leggi demaniali, Analisi sul CTM, Strutture e mappe, Ricerche e proposte d'uso*), Document: Marco Polo System GEIE (2007). *Linee guida al Piano per il riuso e la valorizzazione del Campo Trincerato di Mestre. Relazione Illustrativa*). Although this plan was never implemented, it has represented the main reference for the subsequent initiatives promoted by the municipality of Venice and the Superintendence of Venice.
28. The masterplan has proposed the contemporary adaptation of the inundation basins of the historic military system into water reservoirs, serving the contemporary water management system in case of emergencies and in rain peak season. Similarly, the 'defended area'—i.e., the area to the west of the waterline—was identified as the place where to foster urban densification, while preserving the openness of the 'fields of fire' to the east (cf. Luiten, E. (2004) pp. 28–36).
29. While the entrenched field started to be conceived shortly after the unification of the Italian state (1861), the conception of Forte Marghera was already envisaged by the French (1797), while the actual construction got started during the subsequent Austrian rule (1805) (cf. Foffano, R. and Lugato, D. (1988) p. 59). Its



- significance as a war memorial is related to the revolution of Venice against the Austrian rule in 1848. In that occasion, Forte Marghera was the location of a long siege (June 1848–May 1849), which went down in the local history as a symbol of Venetian pride (cf. Scroccaro, M. (2015) pp.18–19). This event has represented one of the arguments used, since the 1960s, to demonstrate the historical-artistic value of Forte Marghera, and to claim for its protection (cf. *Archivio Soprintendenza Archeologia, Belle Arti e Paesaggio di Venezia e Laguna* (Archive of the Agency for Archaeology, Fine Arts and Landscape of Venice and Lagoon; from now on: ASABAPV), *Box Forti: Forte Marghera: vol. 1*, File: *Questioni vincolistiche*, Document: Communication of the General Directorate of the State Property to the Finance Office of Venice (09 March 1982).
30. Fort bij Vechten was built in the third construction phase of the New Dutch Waterline (1867–1870), when the design of forts knew its peak from a historic-architectural point of view. Moreover, with its 23 ha, it is second in size only to Fort Rijnauwen (cf. Steenbergen, C., Zwart, J. van der, Grootens, J., Brons, R. and Colebrander, B. (Eds.) (2009) p.29). From a landscape perspective, it's location in the second ring of forts around Utrecht, is also relevant. Within the masterplan, this so-called *Kraag van Utrecht* (Collar of Utrecht) was identified as a peculiar regional landscape of the New Dutch Waterline. As an area historically difficult to inundate, defense here mostly relied on the forts. For this reason, the preservation of the forts in this part of the waterline was given priority within the masterplan (cf. Luiten, E. (2004) p.28).
  31. Within this paper, the cases of Forte Marghera and Fort bij Vechten are presented, in the light of the priority received in the Italian and Dutch revitalization experiences. A wider range of reuse projects implemented on other forts of the New Dutch Waterline and the Entrenched Field of Mestre was taken into account in the author's doctoral dissertation, which were selected according to different categories of owners and users. See: Marulo, F. (2022).
  32. In this sense, the historic-ecological research carried out at Fort bij Vechten prior to the realization of the *strook* has given a great impulse to study of the historical use of vegetation for military purposes in the Netherlands (cf. Boosten, M., Jansen, P. and Borkent, I. (2012) pp. 66–67).
  33. For a detailed account on the comparison between the revitalization strategies implemented at Forte Marghera and Fort bij Vechten, see: Marulo, F. (2020); Marulo, F. (2022).
  34. Cf. Donadieu, P. (2014) p.213.
  35. Cf. Tosco, C. (2007) p.12.
  36. Cf. Scazzosi, L. (1999) p.18.
  37. According to C. Manfredi there are two different models of heritage protection policies in Western Europe: the first uses classification as a tool for identifying the objects to be protected, followed by the drawing up of lists (Great Britain, France, Spain and the Netherlands); the second is based on the acknowledgement of specific characters in the objects to be protected (Germany, Austria and Italy). Consequently, Manfredi highlights a relationship between the first model to a greater integration between protection and planning measures for the listed objects (cf. Manfredi, C. (2017) pp.35–41).
  38. Cf. Settis, S. (2010) p.110; Tosco, C. (2014) p.53; Ventura, F. (1987) pp.3–13.
  39. Reference is made to the *Codice dei Beni Culturali e del Paesaggio* (Cultural Goods and Landscape Act) (2004), the more recent legislative measure addressing landscape protection in the wider frame of cultural heritage policy. In it, the new generation of *piani paesaggistici* (regional landscape plans) have been introduced as the spatial planning instrument of highest grade, bearing binding measures for all other (territorial and municipal) plans (Cf. Codice dei Beni Culturali e del Paesaggio (2004). Art. 143: *Piano paesaggistico* (Landscape plan). For a detailed account on landscape protection in Italy and the Netherlands, see: Marulo, F. (2022) pp.49–170.
  40. Cf. Windt, H. van der (1995); Renes, J. (2008).
  41. At the moment, landscape policy is regulated within the *Omgevingswet* (Environmental and Planning Act), entered into force in January 2024 (Cf. Minister of Interiors and Kingdom Relations 2021). As for the cultural heritage policy, landscape protection is not directly addressed in the *Erfgoedwet* (Heritage Act), passed in 2016.
  42. The practice of selecting valuable landscapes through the drafting of lists can be traced back to the 1939's list of *Het voornaamste Natuurschoon in Nederland* (The most important Nature Beauty in the Netherlands) (Brouwer, G. A., Cleyndert, H., Kloot, W. G., Thijsse, Jac. P. & Weevers, Th. (1939)), in which 700 areas were included. This number has decreased over time, up to the twenty national landscapes nominated in 2004 within the National Spatial Strategy, which included the New Dutch Waterline (cf. Renes, J. (2011) p.240).
  43. Cf. Rijksdienst voor het Cultureel Erfgoed 2009: 8. Before being nominated as national monument, the New Dutch Waterline had already been recognized as national landscape (cf. Renes, J. (2011) p.240).
  44. Cf. UNESCO 2023: 24.
  45. Cf. UNESCO 1995: 13–14; UNESCO 2023: 22–23.
  46. From 2013 onwards, several initiatives have been carried out by ICOMOS and IUCN to bridge the divide between nature and culture in the World Heritage system, among which the project 'Connecting Practice', aimed at finding strategies to integrate the assessment process of the two advisory bodies. This project was run in three phases (ICOMOS & IUCN 2015; Leitão et.al. 2017; De Marco et.al. 2020).
  47. The UNESCO nomination was the result of a long process, which culminated in the inclusion of the New Dutch Waterline as an extension to the Stelling van Amsterdam, a similar military system from the 1880s already nominated as World Heritage in 1996. Together, the two military systems are now inscribed as 'Dutch Water Defence Lines' on the World Heritage list (2021) (cf. Project Office for the Defence Line of Amsterdam and New Dutch Waterline Programme Office 2018).
  48. In particular, reference is made to the discussion on the definition of the buffer zone around the World Heritage site (cf. ICOMOS (2021b) pp.164–165).
  49. Within the 2009 designation program, the need to 'handle responsibly' these open spaces is acknowledged, but considered as a responsibility for the Ministry of Housing, Spatial Planning and the Environment and, therefore, out of the scope of the Cultural Heritage Agency (Rijksdienst voor het Cultureel Erfgoed (2009) pp. 9, 22).
  50. 'Venice and its Lagoon' was nominated as World Heritage already in 1987 (cf. ICOMOS (1987)).
  51. The importance of looking at World Heritage properties from a broader perspective, considering a more nuanced set of non-exceptional values, has also been highlighted by ICOMOS and IUCN in the second phase of the 'Connecting Practice' project as a necessary requirement in the practical management of these sites (Cf. Leitão et.al. 2017: 203).

<sup>52</sup>. Within the Environmental and Planning Act of the Netherlands, landscape protection is entrusted to the municipalities through the drafting of 'physical environmental plans' (Cf. Minister of Interiors and Kingdom Relations (2021) p.11).

<sup>53</sup>. Cf. Cavagnero, P., Giusti, M.A. and Revelli, R. (2009).

## Bibliography

- Boosten, M. and Jansen, P. A. G. (2007). *Quick scan: historische waarde van de beplanting op de Nieuwe Hollandse Waterlinie*. Wageningen: Stichting Probos.
- Boosten, M., Jansen, P. and Borkent, I. (2012). *Beplantingen op verdedigingswerken*. Utrecht: Matijjs.
- Brice, M. H. (1984). *Stronghold: a history of military architecture*. London: B.T. Batsford.
- Brouwer, G. A., Cleyndert, H., Kloot, W. G., Thijsse, Jac. P. & Weevers, Th. (1939). *Het voornaamste Natuurschoon in Nederland*. Contact-Commissie inzake Natuurbescherming.
- Brunello, P. (2009). La deterrenza impossibile: i campi trincerati in Europa (1870–1915), in *I forti di Mestre. Storia di un campo trincerato* (2ed.), Zanlorenzi, C. (Ed.). Sommacampagna: Cierre, 32–44.
- Cavagnero, P., Giusti, M.A. and Revelli, R. (2009). *Scienza idraulica e restauro dei giardini*. Torino: Celid.
- Coates, P., Cole, T., Dudley, M. & Pearson, C. (2011). Defending Nation, Defending Nature? Militarized Landscapes and Military Environmentalism in Britain, France, and the United States, *Environmental History*, 16, n. 3.
- Comune di Venezia (1992). *Un parco per San Giuliano. Concorso internazionale di progettazione del sistema per il tempo libero di San Giuliano, Forte Marghera, Cavergnaghi*. Venezia: Tipo-Litografia Armena.
- Cosgrove, D. & Daniels, S. (Eds.) (1988). *The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments*. Cambridge: Cambridge University Press.
- Council of Europe (2000). *European Landscape Convention*, Available at: <https://rm.coe.int/16807b6bc7> [25.01.2024]
- Council of Europe (2018). *Glossary of the Information System of the Council of Europe Landscape Convention*, Available at: <https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=09000016802fc144> [25.01.2024]
- De Marco, L., Bourdin, G., Buckley, K., Leitão, L., Thibault, M. & Wigboldus, L. (2020). *Connecting Practice Phase III: Final Report*. ICOMOS/IUCN. Available at: <https://openarchive.icomos.org/id/eprint/2477/>
- Donadieu, P. (2014). *Scienze del paesaggio: tra teorie e pratiche*. (A. Inzerillo, Trans.). Pisa: ETS.
- Duempelman, S. (2014). Concealing the Land. Creating Invisible Landscapes of War and Peace. In: *Flights of Imagination: Aviation, Landscape, Design*, Id. Charlottesville: University of Virginia Press.
- Duffy, C. (1979). *Siege warfare: the fortress in the early modern world. 1494–1660*. London: Routledge and Kegan Paul.
- Duffy, C. (1985). *The fortress in the age of Vauban and Frederick the great, 1660–1789*. London: Routledge & Kegan Paul.
- Duffy, C. (1996). *Fire and stone: the science of fortress warfare, 1660–1860*. London: Greenhill Books.
- Feddes, F. and Wilkens C.S. (1999). The Belvedere Memorandum: a policy document examining the relationship between cultural history and spatial planning (Ser. Belvedere reeks). Nieuwegein: Distributiecentrum VROM.
- Fiorino, D. R. (Ed.) (2017). Proceedings of the International Conference Military landscapes. A future for military heritage (La Maddalena, 21–24 June 2016). Milano: Skirà.
- Fiorino, D. R. (2020). Europa'trincerata'. Scenari di riuso. In: *Paesaggi militari del Campo Trincerato di Roma: Progetti per Forte Aurelia*, Chiri, G. M., Fiorino, D. R., Morezzi, E. and Novelli, F. (Eds.). Torino: Politecnico di Torino, 42–57.
- Fitzhugh, A. (1943). Camouflage. Adaptation of basic principles of landscape architecture, *Landscape Architecture*, 33(4).
- Foffano, R. and Lugato, D. (1988). *Da Marghera a forte Marghera. Storia delle trasformazioni dell'antico borgo di Marghera da ambiente naturale ad area fortificata*. Spinea: Multigraf Gruppo di lavoro per Forte Marghera...terra d'acqua (2014). *Forte Marghera: cuore del campo trincerato*. Gorizia: Res.
- Gruppo di lavoro per Forte Marghera...terra d'acqua (2014). *Forte Marghera: cuore del campo trincerato*. Gorizia: Res.
- Hannema, K. (2016). The New Hollandic Water Line is an ingenious, 18th-century defence system that has had new life breathed into it by the Waterliniemuseum Fort bij Vechten. *Mark: another architecture*, n. 60, 128–135.